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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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22850	7590	03/11/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			PENDERGRASS, KYLE M	
			ART UNIT	PAPER NUMBER
			2624	

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/893,685	ASAUCHI, NOBORU	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kyle M Pendergrass	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-76 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-31, 38-55, 62, 63, 65, 68, 71 and 74 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 12, 13, 64, 66-67, 69-70, 72-73, & 75-76 is/are rejected.
- 7) ☐ Claim(s) 3-11, 14-18, 32-37 and 56-61 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>09/03/04</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### ***Claim Objections***

Claim 8 is objected to because of the following informalities: it is redundant to claim 7, which recites identical features. Appropriate correction is required.

Claims 32-37 & 56-61 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

**Claims 1, 2, 12, 13, 64, 66-67, 69-70, 72-73, & 75-76 are rejected under 35 U.S.C. 102(a) as being anticipated by Saruta et al. (US 6,798,997).**

Regarding claim 1, **Saruta et al.** teach a printing material container (*fig 15, ink cartridges 107K & 107F*) detachably attached to a printing apparatus (*fig 1 & page 10 line 38, ink cartridge is attached to unit 18 part of printer*) having a clock signal line (*fig 6, CLK line*), a data signal line (*fig 6, DATA line*), and a reset signal line (*fig 6 chip select signal CS line*), said printing material container comprising:

a reservoir unit that keeps a printing material therein (*fig 5 & page 10, line 18, ink chamber 117K keeps ink*);

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a clock terminal that receives a clock signal sent via the clock signal line of said printing apparatus (*fig 6, clock terminal receives CLK signal via CLK line of printer main body 100*);

a data terminal that transmits a data signal to and from the data signal line of said printing apparatus (*fig 6, data terminal transmits DATA signal via DATA line of printer main body 100*);

a reset terminal that receives a reset signal sent via the reset signal line of said printing apparatus (*fig 6, reset terminal receives CS/reset signal via CS/reset line of printer main body 100*);

a storage element (*fig 6 & fig 15, storage element 80*) having a plurality of non-volatile storage areas (*fig 9 storage areas 600-620, 660 and 650*) that are sequentially accessed (*page 12, paragraph 0080, storage areas are accessed one after another*)

and a storage element control unit (*fig 6, address counter 83*) that is initialized at a first level of the input reset signal (*page 11:lines 18-19, when reset CS signal is low, address counter 83, i.e. storage element control unit, is set equal to zero, i.e. is initialized*) and carries out a writing/reading operation of data into and from the storage element according to the data signal synchronously with the input clock signal when the reset signal is switched over to a second level (*page 11:lines 19-21, when reset CS signal goes high, i.e. is switched over to a second level, the address counter 83 is enabled, which allows data reading/writing. Page 11:lines 30-31, data are written synchronously with clock signal*).

Regarding claim 2, **Saruta et al.** teach a printing material container in accordance with claim 1, wherein data are written into the storage element bit by bit (*page 11:lines 28-29, data are written in one-bit outputs*).

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Regarding claim 12, **Saruta et al.** teach a non-volatile storage device (*fig 6 & fig 15, ink cartridge 107K and 107F*) that is detachably attached to a printing material container (*page 10 line 38, ink cartridge is attached to printer material container unit 18 part of printer*) and connects with a clock signal line (*fig 6, CLK line*), a data signal line (*fig 6, DATA line*), and a reset signal line (*fig 6 chip select signal CS line*), said storage device comprising:

a storage element (*fig 6 memory cell 81*) having a plurality of non-volatile storage areas (*fig 9 storage areas 600-620, 660 and 650*) that are sequentially accessed (*page 12, paragraph 0080, storage areas are accessed one after another*)

and a storage element control unit (*fig 6, address counter 83*) that is initialized at a first level of the input reset signal (*page 11:lines 18-19, when reset CS signal is low, address counter 83, i.e. storage element control unit, is set equal to zero, i.e. is initialized*) and carries out a writing/reading operation of data into and from the storage element according to the data signal synchronously with the input clock signal when the reset signal is switched over to a second level (*page 11:lines 19-21, when reset CS signal goes high, i.e. is switched over to a second level, the address counter 83 is enabled, which allows data reading/writing. Page 11:lines 30-31, data are written synchronously with clock signal*).

Regarding claim 13, **Saruta et al.** teach a storage device in accordance with claim 12, wherein data are written into the storage element bit by bit (*page 11:lines 28-29, data are written in one-bit outputs*).

Regarding claim 64, **Saruta et al.** teach a method of gaining access to a storage device attached to a desired printing material container among a plurality of printing material containers (*fig 15, containers 107K and 107F*), each printing material container having a non-volatile storage device (*fig 6 & fig 15, storage element 80*) that connects with a clock signal line (*fig 6, CLK line*), a data signal line (*fig 6, DATA line*), and a reset signal line (*fig 6 chip select signal CS line*), and stores

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proper identification information therein (*fig 8 & page 12 paragraph 0078, serial number data can be used as an ID*), said method comprising the steps of:

outputting a reset signal to the reset signal line (*page 11 paragraph 0070, reset CS signal is output low and high*);

and transmitting a data array (*fig 12, step 56*), and a write/read command to the data signal line synchronously with a clock signal (*page 11 paragraph 0071, R/W signal switches to high and data are written synchronously with the rise of the clock*).

Regarding claim 66, **Saruta et al.** teach in a printing material container (*fig 15, containers 107K and 107F*) having a non-volatile storage device (*fig 6, storage element 80*), which includes a storage element (*fig 6, memory cell 81*) sequentially accessed (*page 12, paragraph 0080, storage areas are accessed one after another*), a method of storing identification information in a specific section located between a head position and a predetermined position of a storage area in the storage element (*page 11, lines 33-34, storing of ink remaining identification information by way of ink quantity specific to device*), said method comprising the steps of:

resetting a count on an address counter to an initial value and prohibiting increment of the count synchronously with a clock signal, in response to detection of a reset signal (*page 11:lines 18-19, when reset CS signal is low, address counter 83, i.e. storage element control unit, is set equal to zero, i.e. is initialized, and count is prohibited*);

setting a direction of data transfer with regard to a data bus to a writing direction and a direction of data transfer with regard to the storage element to a writing direction, in response to a write command transmitted to the data bus (*page 11, paragraph 0071 writing command is issued to deliver data from printer main body into storage element*);

allowing increment of the count on the address counter synchronously with the clock signal after completion of the settings of the directions of data transfer (*page 11 lines 18-21, address counter is incremented with the clock signal*);

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and writing the identification information between the head position and the predetermined position of the storage area in the storage element and subsequently writing data into the storage area according to the count on the address counter (*page 11 lines 18-21, address counter is incremented with the clock signal to specify an address. Fig 8, data position 701 stores identification information regarding remaining ink quantity*).

Regarding claim 67, **Saruta et al.** teach in a printing material container (*fig 15, containers 107K and 107F*) having a non-volatile storage device (*fig 6, storage element 80*), which includes a storage element (*fig 6, memory cell 81*) sequentially accessed (*page 12, paragraph 0080, storage areas are accessed one after another*), a method of reading data stored in a storage area of the storage element from a head position of the storage area, said method comprising the steps of:

resetting a count on an address counter to an initial value and prohibiting increment of the count synchronously with a clock signal, in response to detection of a reset signal (*page 11:lines 18-19, when reset CS signal is low, address counter 83, i.e. storage element control unit, is set equal to zero, i.e. is initialized, and count is prohibited*);;

setting a direction of data transfer with regard to a data bus to a reading direction and a direction of data transfer with regard to the storage element to a reading direction, in response to a read command transmitted to the data bus (*page 12, paragraph 0079, storage area 660 is located near the head and can be written to or read from, which is inclusive of a command that sets data transfer direction from the storage element and into the printer*);

allowing increment of the count on the address counter synchronously with the clock signal after completion of the settings of the directions of data transfer (*page 11, lines 20-21, address counter counts up with the clock to select the address in memory to read from*);

and reading data stored in the storage area of the storage element from the head position of the storage area according to the count on the address counter (*page 12, lines 19-21, section 660 is near the head position of the storage area*).

Regarding claim 69, **Saruta et al.** teach a method in accordance with any one of claims 64 to 68, said method being applied to a set of at least two printing material containers (*fig 15, multiple containers 107F and 107K*), each having said storage device that stores a different piece of identification information (*Fig 8, data position 701 stores identification information regarding remaining ink quantity which is specific to each container*).

Regarding claim 70, **Saruta et al.** teach a method of gaining access to a storage device attached to a desired printing material container among a plurality of printing material containers (*fig 15, containers 107K and 107F*), each printing material container having a non-volatile storage device (*fig 6 & fig 15, storage element 80*) that connects with a clock signal line (*fig 6, CLK line*), a data signal line (*fig 6, DATA line*), and a reset signal line (*fig 6 chip select signal CS line*), and stores proper identification information therein (*fig 8 & page 12 paragraph 0078, serial number data can be used as an ID*), said method comprising the steps of:

outputting a reset signal to the reset signal line (*page 11 paragraph 0070, reset CS signal is output low and high*);

and transmitting a data array (*fig 12, step 56*), and a write/read command to the data signal line synchronously with a clock signal (*page 11 paragraph 0071, R/W signal switches to high and data are written synchronously with the rise of the clock*).

Regarding claim 72, **Saruta et al.** teach in a printing material container (*fig 15, containers 107K and 107F*) having a non-volatile storage device (*fig 6, storage element 80*), which includes a storage element (*fig 6, memory cell 81*) sequentially accessed (*page 12, paragraph 0080, storage areas are accessed one after another*), a method of storing identification information in a specific section located between a head position and a predetermined position of a storage area in the

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storage element (*page 11, lines 33-34, storing of ink remaining identification information by way of ink quantity specific to device*), said method comprising the steps of:

resetting a count on an address counter to an initial value and prohibiting increment of the count synchronously with a clock signal, in response to detection of a reset signal (*page 11:lines 18-19, when reset CS signal is low, address counter 83, i.e. storage element control unit, is set equal to zero, i.e. is initialized, and count is prohibited*);

setting a direction of data transfer with regard to a data bus to a writing direction and a direction of data transfer with regard to the storage element to a writing direction, in response to a write command transmitted to the data bus (*page 11, paragraph 0071 writing command is issued to deliver data from printer main body into storage element*);

allowing increment of the count on the address counter synchronously with the clock signal after completion of the settings of the directions of data transfer (*page 11 lines 18-21, address counter is incremented with the clock signal*);

and writing the identification information between the head position and the predetermined position of the storage area in the storage element and subsequently writing data into the storage area according to the count on the address counter (*page 11 lines 18-21, address counter is incremented with the clock signal to specify an address. Fig 8, data position 701 stores identification information regarding remaining ink quantity*).

Regarding claim 73, **Saruta et al.** teach in a printing material container (*fig 15, containers 107K and 107F*) having a non-volatile storage device (*fig 6, storage element 80*), which includes a storage element (*fig 6, memory cell 81*) sequentially accessed (*page 12, paragraph 0080, storage areas are accessed one after another*), a method of reading data stored in a storage area of the storage element from a head position of the storage area, said method comprising the steps of:

resetting a count on an address counter to an initial value and prohibiting increment of the count synchronously with a clock signal, in response to detection of a reset signal (*page*

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*11:lines 18-19, when reset CS signal is low, address counter 83, i.e. storage element control unit, is set equal to zero, i.e. is initialized, and count is prohibited);;*

setting a direction of data transfer with regard to a data bus to a reading direction and a direction of data transfer with regard to the storage element to a reading direction, in response to a read command transmitted to the data bus (*page 12, paragraph 0079, storage area 660 is located near the head and can be written to or read from under predetermined conditions, which is inclusive of a command that sets data transfer direction from the storage element and into the printer*);

allowing increment of the count on the address counter synchronously with the clock signal after completion of the settings of the directions of data transfer (*page 11, lines 20-21, address counter counts up with the clock to select the address in memory to read from*);

and reading data stored in the storage area of the storage element from the head position of the storage area according to the count on the address counter (*page 12, lines 19-21, section 660 is near the head position of the storage area*).

Regarding claim 75, **Saruta et al.** teach a non-volatile storage device (*fig 6 storage element 80*) that connects with a clock signal line (*fig 6, CLK line*), a data signal line (*fig 6, DATA line*), and a reset signal line (*fig 6 chip select signal CS line*) and is initialized in response to a reset signal input via the reset signal line (*page 11:lines 18-19, when reset CS signal is low, address counter 83 in storage element is set equal to zero, i.e. is initialized*), said storage device comprising a storage element, which includes a storage element (*fig 6, memory cell 81*) sequentially accessed (*page 12, paragraph 0080, storage areas are accessed one after another*), and a specific section (*fig 9, section 660*) between a head position and a predetermined position of the storage area, the specific section being subjected to a writing operation under a predetermined condition and otherwise storing identification information in an un-rewritable manner (*page 12, paragraph 0079,*

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*storage area 660 is located near the head and can be written to or read from under predetermined conditions).*

Regarding claim 76, **Saruta et al.** teach a printing material container detachably attached to a printing apparatus, said printing material container comprising: a reservoir unit that keeps a printing material therein (*fig 5 & page 10, line 18, ink chamber 117K keeps ink*); a storage element (*fig 6, storage element 80*) having a storage area of an identification information (*fig 9, section 601 contains identification of ink quantity remaining*), and a writable data area, in which data are writable (*page 12, paragraph 0079, storage area 660 is located near the head and can be written to, wherein fig 9, section 602 can be written to*), after the storage area of the identification information (*section 602 comes after 601*).

#### ***Allowable Subject Matter***

Claims 3-11, & 14-31, 38-55, 62-63, 65, 68, 71 & 74 are allowed.

Claims 32-37 & 56-61 are objected to under 37 CFR 1.75(c) as being in improper form, but would otherwise be allowable.

Claims 3-11 & 14-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The invention is directed to provide storage devices in a printer that enable identification data to be readily rewritten and that ensure normal completion of a data writing operation in a short time

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period. The closest prior art, **Saruta et al. (US 6,798,997)**, disclosed a similar method of writing data to storage devices in a printer, but do not disclose a printing material container comprising an ID comparator that sends an access enable signal to a operation code decoder for controlling an input/output controller based on a reset signal level received into the printing material container.

Regarding claim 19, **Saruta et al.** do not teach a plurality of printing material containers, each comprising a non-volatile storage device that is mounted thereon and connects with a control unit via a bus with a clock terminal, a data terminal, and a reset terminal, said control unit comprising a clock signal generation circuit that generates a clock signal, a reset signal generation circuit that generates a reset signal, an identification information output circuit that outputs identification information to identify a desired printing material container among said plurality of printing material containers, and a data output circuit that transmits a data array including the output identification information and a write/read command to a data signal line synchronously with the clock signal, each of said printing material containers comprising: a data bus that connects with the data terminal; a storage element that stores a different piece of identification information assigned to said each printing material container and has a storage area sequentially accessed; a comparator that connects with the data bus and compares the identification information output from said control unit with the identification information stored in the storage element to determine coincidence or incoincidence of the two pieces of identification information; an input-output controller that is interposed between the storage element and the data bus and controls a direction of data transfer with regard to the storage element as well as a direction of data transfer with regard to the data bus; and a command decoder that connects with the data bus and the comparator, analyzes the write/read command input via the data bus when a result of the determination by the comparator represents coincidence of the identification information output from said control unit with the identification information stored in the storage element, and requires the input-

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output controller to switch over the direction of data transfer with regard to the data bus based on a result of the analysis.

Regarding claim 29, **Saruta et al.** do not teach a plurality of non-volatile storage devices, each connecting with a control unit via a bus with a clock terminal, a data terminal, and a reset terminal, said control unit comprising a clock signal generation circuit that generates a clock signal, a reset signal generation circuit that generates a reset signal, an identification information output circuit that outputs identification information to identify a desired storage device among said plurality of storage devices, and a data output circuit that transmits a data array including the output identification information and a write/read command to a data signal line synchronously with the clock signal, each of said storage devices comprising: a data bus that connects with the data terminal; a storage element that has a storage area sequentially accessed; a comparator that connects with the data bus and compares the identification information output via the identification information output circuit and the data output circuit of said control unit with identification information stored in the storage element to determine coincidence or incoincidence of the two pieces of identification information; an input-output controller that is interposed between the storage element and the data bus and controls a direction of data transfer with regard to the storage element as well as a direction of data transfer with regard to the data bus; and a command decoder that connects with the data bus and the comparator, analyzes the write/read command input via the data bus when a result of the determination by the comparator represents coincidence of the identification information output from said control unit with the identification information stored in the storage element, and requires the input-output controller to switch over the direction of data transfer with regard to the data bus based on a result of the analysis.

Regarding claim 38, **Saruta et al.** do not teach a printing material container detachably attached to a printing apparatus having a clock signal line, a data signal line, and a reset signal line, said printing material container comprising: a reservoir unit that keeps a printing material therein; a clock terminal connecting with the clock signal line of said printing

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apparatus via a bus; a data terminal connecting with the data signal line of said printing apparatus via the bus; a reset terminal connecting with the reset signal line of said printing apparatus via the bus; a storage element that has a non-volatile storage area and is subjected to a writing/reading operation based on a clock signal input via the clock terminal and a data signal input and output via the data terminal; a comparator that compares printing material container identification information, which is included in the data signal and assigned to said printing material container for identification thereof, with identification information stored in advance in the storage element to determine coincidence or incoincidence of the two pieces of identification information; and an input-output controller that allows the writing/reading operation into and from the storage element when the comparator determines coincidence of the two pieces of identification information.

Regarding claim 44, **Saruta et al.** do not teach a non-volatile storage device that connects with a clock signal line, a data signal line, and a reset signal line and is detachably attached to a printing material container, said storage device comprising: a storage element that has a non-volatile storage area and is subjected to a writing/reading operation based on a clock signal input via the clock signal line and a data signal input and output via the data signal line; a comparator that compares printing material container identification information, which is included in the data signal and assigned to said printing material container for identification thereof, with identification information stored in advance in the storage element to determine coincidence or incoincidence of the two pieces of identification information; and an input-output controller that allows the writing/reading operation into and from the storage element when the comparator determines coincidence of the two pieces of identification information.

Regarding claim 50, **Saruta et al.** do not teach a storage system comprising a plurality of printing material containers and a control unit, each printing material container having a non-volatile storage device that connects with a clock signal line, a data signal line, and a reset signal line via a bus and a reservoir unit that keeps a printing material therein, said control unit connecting with said storage device included in said printing material container via the

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clock signal line, the data signal line, and the reset signal line, said control unit comprising: a clock signal generation circuit that generates a clock signal; a reset signal generation circuit that generates a reset signal for initializing said storage device; an identification information output circuit that outputs identification information to identify a storage device included in a desired printing material container among said plurality of printing material containers; and a data output circuit that transmits a data array including the output identification information and a write/read command to the data signal line synchronously with the clock signal, said storage device included in said each printing material container comprising: a data bus that connects with the data signal line; a storage element that has a storage area sequentially accessed; a comparator that connects with the data bus and compares the identification information output from said control unit with identification information stored in the storage element to determine coincidence or incoincidence of the two pieces of identification information; an input-output controller that is interposed between the storage element and the data bus and controls a direction of data transfer with regard to the storage element as well as a direction of data transfer with regard to the data bus; and a command decoder that connects with the data bus and the comparator, analyzes the write/read command input via the data bus when a result of the determination by the comparator represents coincidence of the identification information output from said control unit with the identification information stored in the storage element, and requires the input-output controller to switch over the direction of data transfer with regard to the data bus based on a result of the analysis.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyle Pendergrass whose telephone number is (571) 272-7438. The examiner can normally be reached on Monday-Friday 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on (571) 272-7440.



**KING Y. POON  
PRIMARY EXAMINER**